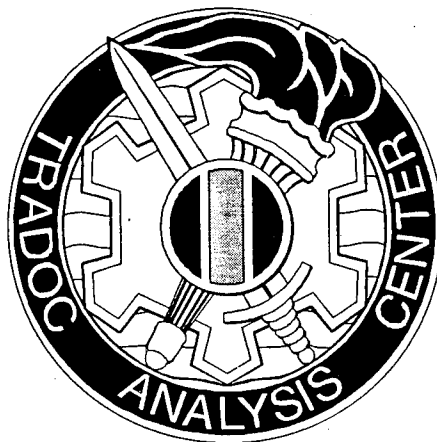
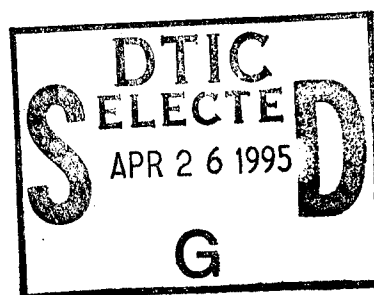


Electronic Messaging Capability

An Assessment of Battle Command
Advanced Warfighting Experiment Observations



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Introduction

The purpose of this paper is to describe the observed impact of electronic messaging on battle command during the Advanced Warfighting Experiments (AWEs) conducted by the Battle Command Battle Laboratory (BCBL) at Fort Leavenworth, Kansas, from January through May 1994. BCBL, in response to the Louisiana Maneuvers 94 issue, "Holistic Review of Command, Control, Communications, Computers, and Intelligence", had the mission to develop a prototype Battle Command Support System (BCSS) capability. This prototype system was expected to support faster, more accurate situation assessment which in turn would lead to more effective mission planning and execution in a digitized force. The experiments were conducted in the context of two Command and General Staff College (CGSC) activities, the Battle Command Elective (BCE) and the Prairie Warrior student exercise. Observations focused on students representing commanders and staff of the Mobile Strike Force (MSF), a notional experimental force.

BCSS Components

- ◆ Situation Awareness
- ◆ Status Reporting
- ◆ Electronic Messaging
- ◆ Collaboration Tools

Electronic messaging represents the communications component of the BCSS, facilitating the exchange, distribution and dissemination of information to support staff coordination and course of action development.

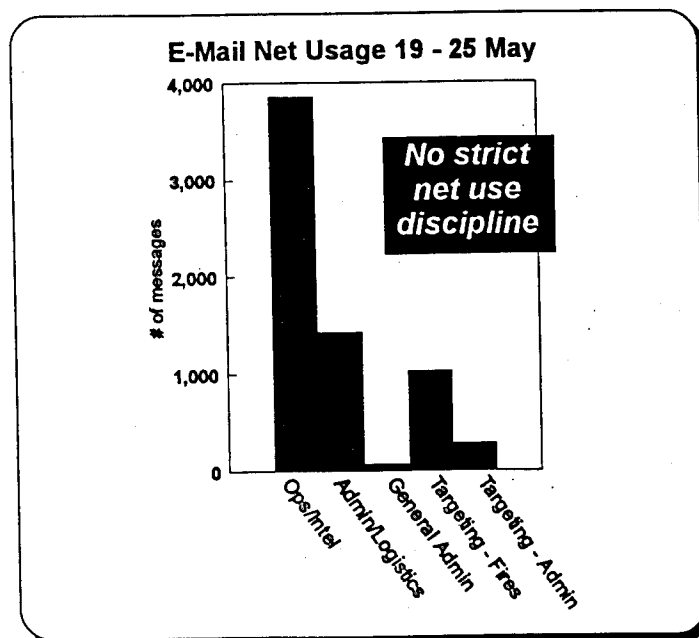
Background

Electronic messaging provides users with a rapid, highly responsive means of communication. The capability is provided by commercial, off-the-shelf electronic mail (e-mail) software for personal computers in a networked environment. E-mail allows users to send messages to remote locations using local or wide area networks, or world wide networks such as Internet. Commercial e-mail software packages are being widely produced and are available separately or with other applications in an office management package. E-mail features typically support rapid creation of messages, useful editing capabilities, flexible addressing to single or multiple users, and the ability to attach other documents or briefing slides to text messages. Throughout industry, including government, commercial business, and academia, e-mail has augmented or in instances replaced regular mail, fax machines, or telephone calls. Business cards often include a fax number and an Internet address along with basic information such as name, address, and phone number. For the AWEs, BCBL selected a commercial product, "E-Note", by E-WARE, which provided basic e-mail capabilities.

Results from AWE Observations

A large variance in the level of computer literacy of BCE students observed during the January experiment made it clear that technology insertion could not be successful without adequate training. A rudimentary form of file transfer that was provided during the first experiment. Some students used this feature to pass information to other staff members by transferring files and confirming the operation with telephone calls; however, many students simply did not understand how to use the capability. After training in February and using E-Note software in the March and April experiments, students gained some confidence in using this technology but more importantly gained an appreciation for the value of electronic messaging and its contribution in the BCSS.

In Prairie Warrior, the MSF relied on e-mail to represent communication networks normally used to support staff functions during combat operations. Different communication networks were established and distinguished in E-Notes by background color as displayed at staff workstations: red for operations and intelligence (O and I), blue for administration/logistics, and yellow for general administration. Standard operating procedures (SOPs) were initially established for the identification and use of the nets, but during the exercise it was determined that additional nets were needed. The division communications officer set up two additional nets: green for fire support-targeting and gray for fire support-administration. Analysis of the E-Notes sent during Prairie Warrior reinforced the need for the development and enforcement of SOPs. Messages with similar content were used over different nets. As an example, some staff officers updated the electronic map overlays using the general administration net while others considered this update procedure more appropriate for the O and I net. Additionally, messages with similar content had different routing criteria. For instance, some targeting messages went just to the fire support officer while other targeting messages went to the entire staff. The exercise also showed how easily messages can accumulate and inundate the user. For example, during the last two days of the Prairie Warrior exercise, the severely understaffed MSF Analysis and Control Element left 230 notes unread in their electronic mailbox. The following graph shows the usage of each of the established nets over the entire Prairie Warrior exercise:



Based on experiment observations, e-mail has the potential to support the following key functions:

- ♦ Rapid bottom-up reporting, top-down decision flow, and lateral information exchange
- ♦ Staff journal preparation, supporting continuous operations with a record of all transmissions, providing greater detail and accuracy

Enhancements identified by students and observers are shown below:

- ♦ Better user control (notes continually popped up on screen, interrupting ongoing work)
- ♦ Priorities for messages
- ♦ User-friendly icons
- ♦ Integration with other capabilities
- ♦ Accurate transmission of prepared text (plans and orders), graphics (maps and overlays), database and spreadsheet data and changes (decision support systems input and output), as well as text messages (spot reports, intelligence reports).
- ♦ Translation of information through parsing software from a message or text form directly into graphics locations, to speed up posting of unit locations, areas of interest or target locations.

Conclusion

Electronic messaging can provide Army units with a rapid, highly responsive means of communicating between and among remote locations. Electronic messaging both augments and ties together the other components of the BCSS within a highly integrated network system. The specific software package used during the AWEs provided an adequate sampling of the e-mail capability needed in the objective BCSS, but the experiments identified a major concern regarding the amount of traffic occurring at a single terminal point. As a communications medium electronic messaging was the foundation for exchange, distribution and dissemination of text information in the MSF. It provided the widest, most reliable method of communications during the experiments.

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